

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1           **Claim 1 (previously presented):**       A location  
2   information transmission method for reporting on-road  
3   location on a digital map,  
4           characterized in that an information provider  
5   transmits on-road location information by using road shape  
6   data including said on-road location comprising a string of  
7   coordinates representing the road shape of a road section  
8   and relative data indicating said on-road location in said  
9   road section; and  
10          that a party receiving said on-road location  
11   information performs shape matching using said road shape  
12   data to identify said road section on the digital map and  
13   uses said relative data to identify the on-road location in  
14   said road section.

1           **Claim 2 (currently amended):**   A location information  
2   transmission according to claim 1,  
3           characterized in that said method uses a string of  
4   coordinates arranging latitude/longitude data of the ~~road~~  
5   road point per predetermined distance interval as a string  
6   of coordinates representing said road shape.

1           **Claim 3 (original):**       A location information  
2   transmission method according to claim 1, characterized in  
3   that said method uses distance data from a specific point  
4   in the road section as said relative data.

1           **Claim 4 (previously presented):** Location information  
2   transmission apparatus for exchanging information about the  
3   on-road location on a digital map,  
4       characterized in that apparatus at an information  
5   provider comprises a location information converter for  
6   converting transmit on-road location information to road  
7   shape data including said on-road location comprising a  
8   string of coordinates representing the road shape of a road  
9   section and relative data indicating said on-road location  
10   in said road section; and  
11       that apparatus at a party receiving the on-road  
12   location information comprises a shape matching section for  
13   performing shape matching by using said road shape data,  
14   identifying said road section on a digital map and  
15   identifying the on-road location in the road section by  
16   using said relative data.

1           **Claim 5 (original):** Location information transmission  
2   apparatus according to claim 4, characterized in that said  
3   apparatus uses a string of coordinates arranging

4 latitude/longitude data of the road point per predetermined  
5 distance interval as a string of coordinates representing  
6 said road shape.

1       **Claim 6 (original):** Location information transmission  
2 apparatus according to claim 4, characterized in that said  
3 apparatus uses distance data from a specific point in said  
4 road section as said relative data.

1       **Claim 7 (original):** A traffic information  
2 provision/reception system, characterized in that said  
3 system comprises location information transmission  
4 apparatus according to claim 4.

1       **Claim 8 (original):** A traffic information  
2 provision/reception system according to claim 7,  
3 characterized in that said information provider is a center  
4 for collecting traffic information in the area and that  
5 said party receiving the on-road location information is a  
6 center for collecting traffic information in other areas.

1       **Claim 9 (original):** A traffic information  
2 provision/reception system according to claim 7,  
3 characterized in that said information provider is an  
4 infrastructure for providing traffic information and that

5 said party receiving the on-road location information is a  
6 car-mounted navigation apparatus.

1           **Claim 10 (previously presented):**       A location  
2 information transmission method for reporting on-road  
3 location on a digital map,  
4           characterized in that an information provider  
5 transmits on-road location information by using road shape  
6 data including said on-road location comprising a string of  
7 coordinates representing the road shape of a road section;  
8 and  
9           that a party receiving said on-road location  
10 information performs shape matching using said road shape  
11 data to identify said road section on the digital map.

1           **Claim 11 (previously presented):**       The location  
2 information transmission method according to Claim 10,  
3           characterized in that said method uses a string of  
4 coordinates arranging latitude/longitude data of the road  
5 point per predetermined distance interval as a string of  
6 coordinates representing said road shape.

1           **Claim 12 (previously presented):**       A location  
2 information transmission apparatus for exchanging  
3 information about the on-road location on a digital map,  
4           characterized in that:

5           an apparatus at an information provider comprises a  
6   location information converter for converting transmit on-  
7   road location information to road shape data including said  
8   on road location comprising a string of coordinates  
9   representing the road shape of a road section; and

10          an apparatus at a party receiving the on-road location  
11   information comprises a digital map and shape matching  
12   section for performing shape matching by using said road  
13   shape data and identifying said road section of the digital  
14   map.

1           **Claim 13 (previously presented):**     The location  
2   information transmission apparatus according to Claim 12,  
3           characterized in that said apparatus uses a string of  
4   coordinates arranging latitude/longitude data of the road  
5   point per determined distance interval as a string of  
6   coordinates representing said road shape.

1           **Claim 14 (previously presented):**     A traffic  
2   information provision/reception system,  
3           characterized in that said system comprises location  
4   information transmission apparatus according to Claim 12.

1           **Claim 15 (previously presented):**     The traffic  
2   information provision/reception system according to Claim  
3   14,

4           characterized in that said information provider is a  
5   center for collecting traffic information in the area and  
6   that said party receiving the on-road location information  
7   is a center for collecting traffic information in other  
8   areas.

1           **Claim 16 (previously presented):**     The traffic  
2   information provision/reception system according to Claim  
3   14,

4           characterized in that said information provider is an  
5   infrastructure for providing traffic information and that  
6   said party receiving the on-road location information is a  
7   car-mounted navigation apparatus.

1           **Claim 17 (previously presented):**   A receiving device  
2   for receiving on-road location information on a digital map  
3   from a device of an information provision side, said  
4   receiving device comprising:

5           a receiver for receiving road shape data including  
6   said on-road location comprising a string of coordinates  
7   representing the road shape of a road section, from the  
8   device of an information provision side;

9           a digital map; and

10          a shape matching section for performing shape matching  
11   by using said road shape data and identifying said road  
12   section on the digital map.

1           **Claim 18 (previously presented):**    An information  
2   provision apparatus for providing on-road location  
3   information on a digital map by using a location  
4   information transmission method according to Claim 10, said  
5   information provision apparatus comprising:  
6           a location information converter for converting  
7   transmission on-road location information to a road shape  
8   data including said on-road location consisting of a string  
9   of coordinates representing the road shape of a road  
10   section.

1           **Claim 19 (previously presented):**    A location  
2   information transmission method for reporting location  
3   information on a digital map, characterized in that:  
4           an information provider transmits location information  
5   using a shape data including a coordinate string; and  
6           a party of receiving side identify said location using  
7   said shape data.

1           **Claim 20 (previously presented):**    The location  
2   information transmission method according to claim 19,  
3           wherein said coordinate string represents a  
4   geometrically pattern on a digital map.

1           **Claim 21 (previously presented):**     The location  
2     information transmission method according to claim 19,  
3           wherein said shape data includes a coordinate string  
4     indicating a region including a position on which an event  
5     occurs.

1           **Claim 22 (previously presented):**     The location  
2     information transmission method according to claim 19,  
3           wherein said shape data includes a coordinate string  
4     indicating a border of a region in which an event occurs.

1           **Claim 23 (previously presented):**     The location  
2     information transmission method according to claim 19,  
3           wherein said shape data includes a coordinate string  
4     indicating points at predetermined intervals.

1           **Claim 24 (previously presented):**     The location  
2     information transmission method according to claim 19,  
3           wherein content of said shape data is changeable in  
4     accordance with a situation of a region indicated by said  
5     shape data.

1           **Claim 25 (previously presented):**     The location  
2     information transmission method according to claim 19,



3            wherein said party of receiving side implements shape  
4     matching using said shape data in order to identify the  
5     location.

1            **Claim 26 (previously presented):**        A location  
2     information transmission apparatus for exchanging location  
3     information on a digital map, characterized in that:

4            an apparatus at an information provider includes a  
5     location information converter which converts a location  
6     information to be transmitted to a shape data having a  
7     coordinate string; and

8            an apparatus at receiving side identifies said  
9     location using said shape data.

1            **Claim 27 (previously presented):**        The location  
2     information transmission apparatus according to claim 26,  
3            wherein said shape data includes a coordinate string  
4     indicating a region including a position on which an event  
5     occurs.

1            **Claim 28 (previously presented):**        The location  
2     information transmission apparatus according to claim 26,  
3            wherein said shape data includes a coordinate string  
4     indicating a border of a region in which an event occurs.

1           **Claim 29 (previously presented):**     The location  
2     information transmission apparatus according to claim 26,  
3           wherein said shape data includes a coordinate string  
4     indicating points at predetermined intervals.

1           **Claim 30 (previously presented):**     The location  
2     information transmission apparatus according to claim 26,  
3           wherein content of said shape data is changeable in  
4     accordance with a situation of a region indicated by said  
5     shape data.

1           **Claim 31 (previously presented):**     The location  
2     information transmission apparatus according to claim 26,  
3           wherein said apparatus of receiving side implements  
4     shape matching using said shape data in order to identify  
5     the location.

1           **Claim 32 (previously presented):**     A system for  
2     providing and/or receiving location information on a  
3     digital map, comprising the location information  
4     transmission apparatus according to any one of claims 26 to  
5     31.

1           **Claim 33 (previously presented):**     The system according  
2     to claim 32,

3            wherein said apparatus at an information provider is  
4     a center for collecting traffic information in a first  
5     area, and

6            wherein said apparatus of receiving side is a center  
7     for collecting traffic information in a second area.

1            **Claim 34 (previously presented):** The system according  
2     to claim 32,

3            wherein said apparatus at an information provider is  
4     an infrastructure for providing traffic information, and

5            wherein said apparatus of receiving side is a car-  
6     mounted navigation apparatus.

1            **Claim 35 (previously presented):** A receiving device  
2     for receiving location information on a digital map,  
3     comprising:

4            a receiving section for receiving shape data including  
5     a coordinate string from an apparatus at an information  
6     provider;

7            a digital map; and

8            location identification section for identifying the  
9     location on said digital map using said shape data.

1            **Claim 36 (previously presented):** The receiving device  
2     according to claim 35,

3            wherein said location identification section  
4            implements shape matching in order to identify the  
5            location.

1            **Claim 37 (previously presented):**    An information  
2            provision apparatus for providing location information on  
3            a digital map, by using the method according to any one of  
4            claims 19 to 25, said apparatus comprising:

5            a location information converter for converting a  
6            location information to be transmitted to said shape data;  
7            and

8            a transmission section for transmitting said shape  
9            data.

1            **Claim 38 (previously presented):**    An information  
2            transmission method for transmitting location information  
3            to a device having a digital map, characterized in that:

4            said location information includes a shape data having  
5            a coordinate string.

1            **Claim 39 (previously presented):**    The information  
2            transmission method according to claim 38,

3            wherein coordinates included in said coordinate string  
4            are absolute coordinates.

1           **Claim 40 (previously presented):**   The information  
2   transmission method according to claim 38,  
3           wherein a part of coordinates included in said  
4   coordinate string is relative coordinate.

1           **Claim 41 (previously presented):**   The information  
2   transmission method according to any one of claims 38 to  
3   40,  
4           wherein said coordinate string is a coordinate chain.

1           **Claim 42 (currently amended):**   A coding method for  
2   ~~coding~~coding an object when information regarding said  
3   object on a traffic ~~route~~route network is transmitted  
4   between an information provider and a party of receiving  
5   side, characterized in that:  
6           said object includes at least a coordinate string;  
7           said coordinate string includes a coordinate on a  
8   road, wherein at least a part of said road is included in  
9   a digital map data of said party of receiving side, and  
10   coordinates indicating a shape whose location is capable of  
11   being identified at said party of receiving side.

1           **Claim 43 (previously presented):**   The location  
2   information transmission method according to claim 21 or  
3   22,

4            wherein said information provider transmits  
5    information indicating a type and level of said event,  
6    adding to said shape data.

1            **Claim 44 (previously presented):**    The location  
2    information transmission apparatus according to claim 27 or  
3    28,

4            wherein said apparatus at an information provider  
5    transmits information indicating a type and level of said  
6    event, adding to said shape data.